# Program Curriculum

## First level

### 1st Semester

| Code | Course title | Contact hours Lecture | Practical | Credit hours | Final Exam | Practical Exam | Mid-Term Exam | Course Activities | Oral Exam | Total | Exam Time | Prerequisite |
|------|-------------|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|
| BSD101 | Calculus | 2 | 2 | 3 | 60 | - | 10 | 25 | 5 | 100 | 2 | - |
| BSD103 | Discrete Mathematics | 2 | 2 | 3 | 60 | - | 10 | 25 | 5 | 100 | 2 | - |
| CSD102 | Basics of Computer Science | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
| ISD101 | Fundamentals of Information Systems | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
| ISD102 | Introduction to Database System | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
| **Total** | | | | **15** | | | | | | **500** | | |

### 2nd Semester

| Code | Course title | Contact hours Lecture | Practical | Credit hours | Final Exam | Practical Exam | Mid-Term Exam | Course Activities | Oral Exam | Total | Exam Time | Prerequisite |
|------|-------------|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|:---:|
| BSD104 | Linear Algebra | 2 | 2 | 3 | 60 | - | 10 | 25 | 5 | 100 | 2 | - |
| BSD105 | Statistics and Probabilities | 2 | 2 | 3 | 60 | - | 10 | 25 | 5 | 100 | 2 | BSD101 |
| BSD226 | Technical Writing | 2 | - | 2 | 60 | - | 10 | 25 | 5 | 100 | 2 | - |
| CSD101 | Digital Logic Design | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
| CSD106 | Fundamentals of Programming | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | CSD102 |
| ISD104 | System Analysis and Design | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | ISD102 |
| **Total** | | | | **17** | | | | | | **600** | | |

# Second Level

## 1st Semester

| Code | Course title | Contact hours Lecture | Practical | Credit hours | Final Exam | Practical Exam | Mid-Term Exam | Course Activities | Oral Exam | Total | Exam Time | Prerequisite |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BSD220 | Stochastic Process | 2 | 2 | 3 | 60 | - | 10 | 25 | 5 | 100 | 2 | BSD105 |
| BSD222 | Operations Research | 2 | 2 | 3 | 60 | - | 10 | 25 | 5 | 100 | 2 | BSD101 BSD104 |
| CSD221 | Data Structures | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | CSD106 |
| CSD223 | Object Oriented Programming | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | CSD106 |
| ISD224 | Web Pages Programming | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
|  | Elective Course (1) | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
| **Total** | | | | **18** | | | | | | **600** | | |

## 2nd Semester

| Code | Course title | Contact hours Lecture | Practical | Credit hours | Final Exam | Practical Exam | Mid-Term Exam | Course Activities | Oral Exam | Total | Exam Time | Prerequisite |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BSD227 | Ordinary Differential Equations (ODEs) | 2 | 2 | 3 | 60 | - | 10 | 25 | 5 | 100 | 2 | BSD101 |
| BSD228 | Advanced Math | 2 | 2 | 3 | 60 | - | 10 | 25 | 5 | 100 | 2 | BSD101 |
| BSD232 | Physics | 2 | 1 | 2 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | CSD101 |
| CSD230 | Analysis of algorithms | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | CSD221 |
| ISD229 | Electronic Business | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
|  | Elective Course (2) | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
| **Total** | | | | **17** | | | | | | **600** | | |

# Elective Courses of Second Level

| المتطلب السابق | عدد الساعات الفعلية | | عدد الساعات المعتمدة | اسم المقرر | كود المقرر |
|---|---|---|---|---|---|
| | عملي | محاضرة | | | |
| - | 2 | 2 | 3 | Information Theory<br>نظرية المعلومات | ISD225 |
| CSD106 | 2 | 2 | 3 | Concepts of programming Languages<br>مفاهيم لغات البرمجة | CSD231 |
| ISD224 | 2 | 2 | 3 | Web Technology<br>تقنية الويب | ISD232 |
| BSD101<br>BSD104 | 2 | 2 | 3 | Numerical Analysis<br>التحليل الرقمي | BSD233 |
| BSD228 | 2 | 2 | 3 | Advanced Math-2<br>الرياضيات المتقدمة-2 | BSD229 |
| BSD101 | 2 | 2 | 3 | Partial Differential Equation and Its Numerical Solution | BSD234 |

# Third Level – Computer Science

## 1st Semester

| Code | Course title | Contact hours Lecture | Practical | Credit hours | Final Exam | Practical Exam | Mid–Term Exam | Course Activities | Oral Exam | Total | Exam Time | Prerequisite |
|------|--------------|---------|-----------|--------------|------------|----------------|---------------|-------------------|-----------|-------|-----------|--------------|
| CSD331 | Artificial Intelligence | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | CSD230 |
| CSD332 | Computer Architecture | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | CSD101 |
| CSD333 | Operating Systems | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | CSD230 |
| CSD334 | Digital Image Processing | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | BSD104 CSD230 |
| CSD335 | Assembly Language | 2 | 1 | 2 | 60 | 10 | 10 | 15 | 5 | 100 | 2 | CSD101 |
|  | Elective Course (3) | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
| **Total** |  |  |  | **17** |  |  |  |  |  | **600** |  |  |

## 2nd Semester

| Code | Course title | Contact hours Lecture | Practical | Credit hours | Final Exam | Practical Exam | Mid–Term Exam | Course Activities | Oral Exam | Total | Exam Time | Prerequisite |
|------|--------------|---------|-----------|--------------|------------|----------------|---------------|-------------------|-----------|-------|-----------|--------------|
| CSD336 | Theory and Design of Compilers | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | CSD231 |
| CSD337 | Computer Graphics | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | CSD230 |
| CSD338 | Introduction to Computer Networks | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | CSD332 |
| CSD341 | Software Engineering | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | ISD104 |
| CSD340 | Simulation and Modeling | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | BSD105 |
|  | Elective Course (4) | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
| **Total** |  |  |  | **18** |  |  |  |  |  | **600** |  |  |

# Elective Courses of Third Level – Computer Science

| المتطلب السابق | عدد الساعات الفعلية | | عدد الساعات المعتمدة | اسم المقرر | كود المقرر |
|---|---|---|---|---|---|
| | عملي | محاضرة | | | |
| CSD223 | 2 | 2 | 3 | Advanced Programming Languages<br>لغات البرمجة المتقدمة | CSD342 |
| ISD101 | 2 | 2 | 3 | Information Visualization<br>تصور المعلومات | ISD303 |
| CSD230 | 2 | 2 | 3 | Digital Signal Processing<br>معالجة الإشارات الرقمية | CSD343 |
| CSD335 | 2 | 2 | 3 | Logic Programming<br>البرمجة المنطقية | CSD344 |
| - | 2 | 2 | 3 | Knowledge Representation and Reasoning<br>تمثيل المعرفة والاستدلال | ISD352 |
| - | 2 | 2 | 3 | Mobile computing<br>الحوسبة المتنقلة | CSD339 |
| CSD106 | 2 | 2 | 3 | Computer Arabization<br>تعريب الحاسبات | CSD345 |
| - | 2 | 2 | 3 | Security and Cryptography<br>الأمن والتشفير | ISD335 |
| CSD106 | 2 | 2 | 3 | Human Computer Interaction | CSD346 |

# Fourth Level – Computer Science

## 1<sup>st</sup> Semester

| Code | Course title | Contact hours | | Credit hours | Mark Distribution | | | | | | Exam Time | Prerequisite |
|------|------|---|---|---|---|---|---|---|---|---|---|---|
| | | Lecture | Practical | | Final Exam | Practical Exam | Mid-Term Exam | Course Activities | Oral Exam | Total | | |
| CSD441 | Mobile Communication Systems | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | CSD338 |
| CSD444 | Distributed Systems | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | CSD333 |
| CSD443 | Computer Vision Systems | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | CSD334 |
| | Elective Course (5) | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | |
| | Elective Course (6) | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
| CSD449 | Graduation Project | 3 | - | 3 | - | - | - | - | - | - | - | - |
| **Total** | | | | **18** | | | | | | **500** | | |

## 2<sup>nd</sup> Semester

| Code | Course title | Contact hours | | Credit hours | Mark Distribution | | | | | | Exam Time | Prerequisite |
|------|------|---|---|---|---|---|---|---|---|---|---|---|
| | | Lecture | Practical | | Final Exam | Practical Exam | Mid-Term Exam | Course Activities | Oral Exam | Total | | |
| CSD451 | Computer and Network Security | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | CSD332 |
| CSD447 | Cloud Computing | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | CSD444 |
| CSD442 | Neural Networks and Deep Learning | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | CSD331 |
| | Elective Course (7) | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
| CSD449 | Graduation Project | 3 | - | 3 | - | - | - | - | - | 200 | - | CSD449 |
| **Total** | | | | **15** | | | | | | **600** | | |

# Elective Courses of Fourth Level – Computer Science

| المتطلب السابق | عدد الساعات الفعلية | | عدد الساعات المعتمدة | اسم المقرر | كود المقرر |
|---|---|---|---|---|---|
| | عملي | محاضرة | | | |
| CSD106 | 2 | 2 | 3 | Dynamic Languages<br>اللغات الديناميكية | CSD452 |
| ISD102 | 2 | 2 | 3 | Data Mining<br>التنقيب عن البيانات | ISD471 |
| ISD104 | 2 | 2 | 3 | Big data Analysis<br>تحليل البيانات الكبيرة | ISD338 |
| BSD228 | 2 | 2 | 3 | Introduction to Quantum Computing<br>الإحصاء الكمية | CSD453 |
| ISD337 | 2 | 2 | 3 | Cyber security<br>الأمن السيبرالى | CSD458 |
| ISD102 | 2 | 2 | 3 | Bioinformatics<br>المعلوماتية الحيوية | ISD441 |
| CSD331 | 2 | 2 | 3 | Optimization Methods<br>طرق التحسين | CSD446 |
| CSD333 | 2 | 2 | 3 | Parallel Processing<br>المعالجة المتوازية | CSD448 |
| CSD331 | 2 | 2 | 3 | Introduction to Machine Learning | CSD445 |

# Third Level – Information Systems

## 1st Semester

| Code | Course title | Lecture | Practical | Credit hours | Final Exam | Practical Exam | Mid-Term Exam | Course Activities | Oral Exam | Total | Exam Time | Prerequisite |
|------|-------------|---------|-----------|--------------|------------|----------------|----------------|-------------------|-----------|-------|-----------|--------------|
| | | Contact hours | | | Mark Distribution | | | | | | | |
| ISD347 | Computer Network Management | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | ISD104 |
| ISD331 | Information Retrieval Systems | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | ISD104 |
| CSD339 | Mobile Computing | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
| ISD333 | Decision Support Systems | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | ISD104 |
| ISD338 | Big Data Analysis | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | ISD104 |
| | Elective Course (3) | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
| **Total** | | | | **18** | | | | | | **600** | | |

## 2nd Semester

| Code | Course title | Lecture | Practical | Credit hours | Final Exam | Practical Exam | Mid-Term Exam | Course Activities | Oral Exam | Total | Exam Time | Prerequisite |
|------|-------------|---------|-----------|--------------|------------|----------------|----------------|-------------------|-----------|-------|-----------|--------------|
| | | Contact hours | | | Mark Distribution | | | | | | | |
| CSD331 | Artificial Intelligence | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | CSD230 |
| ISD336 | Advanced Database Systems | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | ISD102 |
| ISD337 | Information Security | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
| CSD341 | Software Engineering | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | ISD104 |
| ISD365 | Electronic Government | 2 | 1 | 2 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
| | Elective Course (4) | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
| **Total** | | | | **17** | | | | | | **600** | | |

# Elective Courses of third Level – Information Systems

| المتطلب السابق | عدد الساعات الفعلية | | عدد الساعات المعتمدة | اسم المقرر | كود المقرر |
|---|---|---|---|---|---|
| | عملي | محاضرة | | | |
| BSD104 CSD230 | 2 | 2 | 3 | Digital image processing<br>معالجة الصور الرقمية | CSD334 |
| ISD101 | 2 | 2 | 3 | Management information systems<br>إدارة نظم المعلومات | ISD334 |
| ISD101 | 2 | 2 | 3 | Information Visualization<br>تصور المعلومات | ISD303 |
| - | 2 | 2 | 3 | Knowledge representation & reasoning<br>تمثيل المعرفة والمنطق | ISD352 |
| CSD223 | 2 | 2 | 3 | Advanced Programming Languages<br>لغات البرمجة المتقدمة | CSD342 |

# Fourth Level – Information Systems

## 1st Semester

| Code | Course title | Contact hours | | Credit hours | Mark Distribution | | | | | | Exam Time | Prerequisite |
|------|------|--------|--------|------|------|------|------|------|------|------|------|------|
| | | Lecture | Practical | | Final Exam | Practical Exam | Mid-Term Exam | Course Activities | Oral Exam | Total | | |
| ISD441 | Bioinformatics | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | ISD102 |
| ISD471 | Data Mining | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | ISD102 |
| ISD444 | Medical Information Systems | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | ISD101 |
| | Elective Course (5) | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
| | Elective Course (6) | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
| ISD446 | Graduation Project | 3 | - | 3 | - | - | - | - | - | - | - | - |
| **Total** | | | | **18** | | | | | | **500** | | |

## 2nd Semester

| Code | Course title | Contact hours | | Credit hours | Mark Distribution | | | | | | Exam Time | Prerequisite |
|------|------|--------|--------|------|------|------|------|------|------|------|------|------|
| | | Lecture | Practical | | Final Exam | Practical Exam | Mid-Term Exam | Course Activities | Oral Exam | Total | | |
| CSD445 | Introduction to Machine Learning | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | CSD331 |
| ISD445 | Geographical Information Systems | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | ISD334 |
| CSD458 | Cyber Security | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | ISD337 |
| | Elective Course (7) | 2 | 2 | 3 | 50 | 20 | 10 | 15 | 5 | 100 | 2 | - |
| ISD446 | Graduation Project | 3 | - | 3 | - | - | - | - | - | 200 | - | ISD446 |
| **Total** | | | | **15** | | | | | | **600** | | |

# Elective Courses of fourth Level – Information Systems

| المتطلب السابق | عدد الساعات الفعلية | | عدد الساعات المعتمدة | اسم المقرر | كود المقرر |
|---|---|---|---|---|---|
| | عملي | محاضرة | | | |
| ISD102 | 2 | 2 | 3 | XML Databases<br>قواعد بيانات XML | ISD451 |
| ISD101 | 2 | 2 | 3 | Web Information Systems<br>نظم معلومات الويب | ISD453 |
| BSD228 | 2 | 2 | 3 | Quantum Information<br>معلومات الكم | ISD456 |
| - | 2 | 2 | 3 | Electronic Health<br>الصحة الإلكترونية | ISD455 |
| - | 2 | 2 | 3 | Electronic Commerce<br>التجارة الإلكترونية | ISD452 |
| CSD331 | 2 | 2 | 3 | Optimization Systems | CSD446 |
| ISD332 | 2 | 2 | 3 | Cloud computing Applications | ISD454 |